

Amendments to the Specification:

Please replace the paragraph beginning at page 6, line 23, with the following amended paragraph:

Decoding may involve the use of a table of logarithm values to determine the ~~logarithm of the~~ value $L(i) = \log \left[\sum_{e:u(e)=i} e^{\{A_{k-1}(m') + \Gamma_i(c_k, m', m) + B_k(m)\}} \right]$ where $\Gamma_i(c_k, m', m)$ is

the branch metric for the branch which connects state m' to state m and i and c_k are the branch labels for input data and coded bits respectively.

Please replace the paragraph beginning at page 7, line 1, with the following amended paragraph:

The ~~logarithm of the~~ value $L(d_k = i)$ may be obtained directly from the table or may be derived from information in the table, for example, by obtaining the ~~logarithm for~~ values above and below the value $L(d_k = i)$ and extrapolating the ~~logarithm for the~~ value $L(d_k = i)$.

Please replace the paragraph beginning at page 12, line 22, with the following amended paragraph:

To evaluate a in this equation, it can be ~~approximate~~ approximated with [Div96A]:

Please replace the paragraph beginning at page 13, line 6, with the following amended paragraph:

This approximation still requires exponential and logarithm operations, which are non-linear ~~operation~~ and hard to implement in DSP based systems.

Please replace the paragraph beginning at page 14, line 4, with the following amended paragraph:

An important problem with implementation of the LogMAP algorithm is that it requires perfect SNR information of input data sequence to the SISO decoder. This significantly increases the complexity of the LogMAP decoder, which is one reason why this algorithm is not convenient for DSP implementation. ~~On the other hand, any~~ Any error in SNR estimation directly affects performance of the LogMAP decoder.

Please replace the paragraph beginning at page 16, line 15 (i.e., equation 25) with the following amended paragraph:

$$\Lambda(d_k) = \sum_{i=0}^1 \left\{ (-1)^{i+1} \log \left[\sum_{e:u(e)=i} e^{\{A_{k-1}(m') + \Gamma_i(c_k, m', m) + B_k(m)\}} \right] \right\} - H_{\Delta} \quad (25)$$

Please replace the paragraph beginning at page 17, line 5, with the following amended paragraph:

In block 1110, the logic computes a set of output extrinsic Log Likelihood Ratio (LLR) values based upon the set of backward metrics and the set of forward metrics according to an equation:

$$\Lambda(d_k) = \sum_{i=0}^1 \left\{ (-1)^{i+1} \log \left[\sum_{e:u(e)=i} e^{\{A_{k-1}(m') + \Gamma_i(c_k, m', m) + B_k(m)\}} \right] \right\}$$

$$\Lambda(d_k) = \sum_{i=0}^1 \left\{ (-1)^{i+1} \log \left[\sum_{e:u(e)=i} e^{\{A_{k-1}(m') + \Gamma_i(c_k, m', m) + B_k(m)\}} \right] \right\} - H_{\Delta}.$$
